

A1
cont.
B, Sub
cont.

~~with respect to each of at least two wavelengths is integer times an [the] associated wavelength.~~

2. (Amended) A diffractive optical element,
comprising:

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other through a space of a refractive index of 1,

wherein a ~~maximum~~ optical path length difference occurring in said pair of diffraction gratings with the space with respect to each of at least two wavelengths is integer times an [the] associated wavelength, and peak portions and valley portions of said pair of diffraction gratings are formed in a chamfered shape.

3. (Amended) A diffractive optical element,
comprising:

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction

A1
Cont.
B/SUB
cont.

gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other,

wherein a maximum optical path length difference occurring in light passing through said pair of diffraction gratings with respect to each of at least two wavelengths is integer times an [the] associated wavelength, and peak portions and valley portions of said pair of diffraction gratings are formed in a chamfered shape.

4. (Amended) A diffractive optical element,
comprising:

[a substrate; and]

[a diffraction grating formed on said substrate, wherein either or both of peak portions and valley portions of said diffraction grating are chamfered]

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of diffraction gratings with the space

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with respect to each of at least two wavelengths is integer times an associated wavelength, and peak portions of said pair of diffraction gratings are formed in a chamfered shape.

5. (Amended) A diffractive optical element,
comprising:

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of diffraction gratings with the space with respect to each of at least two wavelengths is integer times an [the] associated wavelength, and [peak portions and] valley portions of said pair of diffraction gratings are formed in a chamfered shape.

6. (Amended) A diffractive optical element,
comprising:

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction

gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other,

wherein a maximum optical path length difference occurring in light passing through said pair of diffraction gratings with respect to each of at least two wavelengths is integer times an [the] associated wavelength, and peak portions [and valley portions] of said pair of diffraction gratings are formed in a chamfered shape.

7. (Amended) A diffractive optical element, comprising:

[a substrate; and

a diffraction grating formed on said substrate, wherein either or both of peak portions and valley portions of said diffraction grating are formed in a chamfered shape]

a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other,

wherein a maximum optical path length difference occurring in light passing through said pair of diffraction gratings with respect to each of at least two wavelengths is

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integer times an associated wavelength, and valley portions
of said pair of diffraction gratings are formed in a
chamfered shape.

Sub
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A2

[Please add new Claims 9-19 as follows:]

--9. A diffractive optical element, comprising:

a pair of diffraction gratings each of which has a
saw-toothed sectional shape, said pair of diffraction
gratings differing in dispersion from each other, said pair
of diffraction gratings confronting each other through a
space of a refractive index of 1,

wherein a maximum optical path length difference
occurring in said pair of diffraction gratings with the space
with respect to each of at least two wavelengths is integer
times an associated wavelength, peak portions of one of said
pair of diffraction gratings are formed in a chamfered shape,
and valley portions of the other of said pair of diffraction
gratings are formed in a chamfered shape.

Q2
cont.
626

10. A diffractive optical element, comprising:
a pair of diffraction gratings each of which has a saw-toothed sectional shape, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other,

wherein a maximum optical path length difference occurring in light passing through said pair of diffraction gratings with respect to each of at least two wavelengths is integer times an associated wavelength, peak portions of one of said pair of diffraction gratings are formed in a chamfered shape, and valley portions of the other of said pair of diffraction gratings are formed in a chamfered shape.

11. A diffractive optical element for diffracting light of a specific order with a high diffraction efficiency, comprising:

a pair of diffraction gratings, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in said pair of diffraction gratings with the space

with respect to each of at least two wavelengths is integer times an associated wavelength, wherein said integer is the number of said specific order.

12. A blazed type diffractive optical element, comprising:

a pair of diffraction gratings, said pair of diffraction gratings differing in dispersion from each other, said pair of diffraction gratings confronting each other through a space of a refractive index of 1,

wherein a maximum optical path length difference occurring in light passing through said pair of diffraction gratings with the space with respect to each of at least two wavelengths is integer times an associated wavelength.

13. An optical system, comprising:

a diffractive optical element according to one of claims 1 to 7 and 9 to 12; and

a lens systems.

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Cont.

14. An optical system according to claim 13,
wherein each of said at least two wavelengths are within a
visible range.

15. An optical system according to claim 13,
wherein one of said pair of diffraction gratings is made of
resin.

16. An optical system according to claim 13,
wherein each of said pair of diffraction gratings are made of
resin.

17. An optical system according to claim 13,
wherein said optical element corrects chromatic aberration in
said lens system.

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18. An optical system according to claim 13,
wherein a length of a flat plate in a direction of grating
arrangement of a grating surface lies within the range of
 $0.5 \mu\text{m} < a < 2 \mu\text{m}$.